

Africanae," in which a new genus (*Pillansia*) of Iridaceae is described by L. BOLUS; and "Key to the flora of the Cape Peninsula," by F. and L. BOLUS.—J. M. C.

**Annals of the Missouri Botanical Garden.**—The present year has been prolific in the appearance of new botanical journals. To the *American Journal of Botany* and the *Annals of the Bolus Herbarium* is now added the *Annals of the Missouri Botanical Garden*. The new journal is a quarterly, the first number being dated March 1914. The journal will provide for the printing of scientific papers which formerly constituted a large part of the annual report of the Missouri Botanical Garden. It will contain only scientific contributions from members of the staff of the Garden, from the faculty and graduate students of the Washington University, and from visiting botanists doing all or part of their work at the Garden. The first number contains the following papers: "The effect of surface films and dusts on the rate of transpiration," by B. M. DUGGAR and J. S. COOLEY; "Some pure culture methods in the algae," by JACOB R. SCHRAMM; "The identification of the most characteristic salivary organism and its relation to the pollution of air," by AUGUST C. NOLTE; "The *Polyporaceae* of Ohio," by L. O. OVERHOLTS.—J. M. C.

**The fresh-water flora of Germany, Austria, and Switzerland.**—Part 1 of this series of brochures has appeared.<sup>7</sup> The five previous parts have been noticed in this journal.<sup>8</sup> The present part completes the flagellates, the other groups of which were presented by PASCHER and LEMMERMANN in part 2. The compact size, excellent illustrations, and well considered analytic keys continue to be features of this excellent work.—J. M. C.

#### NOTES FOR STUDENTS

**Color inheritance.**—Continuing his excellent studies on *Melandrium* (*Lychnis*), SHULL<sup>9</sup> has made a great advance in our knowledge of the inheritance of leaf pigments of the chlorophyll and the carotin-xanthophyll groups. With his characteristic care, the author came to his conclusions only after a very large number of hybrids properly synthesized for the tests desired had been made. The color wheel was used as an aid to the classification of the individuals wherever it was deemed necessary. BAUR's discovery of a general factor for chlorophyll formation (*Z*), without which plants are free from chlorophyll, is confirmed; but his idea that the gene *Z* produces yellow pigment is not supported. Assuming the presence of unanalyzed genes *XX*, then typical

<sup>7</sup> PASCHER, A., Die Süßwasser-Flora, Deutschlands, Österreichs, und der Schweiz. Part 1. Flagellatae, by A. PASCHER and E. LEMMERMANN. pp. 138. figs. 252. Jena: Gustav Fischer. 1914.

<sup>8</sup> BOT. GAZ. 56:233. 1913; 57:335. 1914.

<sup>9</sup> SHULL, G. H., Über die Vererbung der Blattfarbe bei *Melandrium*. Ber. Deutsch. Bot. Gesells. 31:40-80. 1914.

dark green plants of *Melandrium* are *XXZZYYNN*. This was shown by crosses between two light green types, *chlorina* and *pallida*. The  $F_1$  generation was the typical dark green, while the  $F_2$  generation consisted of dark green and light green in the ratio 9:7. Among the light green individuals both *chlorina* and *pallida* plants could be recognized, but just what characters the plants with the formula *XXZZyynn* possessed was not determined.

Three cases of non-mendelizing leaf variegation are also described:

1. This case of variegation was a chimera made up of typical dark green and of pure white areas. Seed from green branches or from white branches produced progeny exactly like the mother, no matter what characters were possessed by the male parent.

2. These plants are called *chlorinomaculata*, because they are dark green spotted with the "chlorina" type of green. The transmission of their characters is not yet entirely clear. The progeny of a female plant crossed with pollen from flowers of different colored branches gave the following results: from variegated branches came green, variegated, and chlorophyll-free plants; from green branches came only green plants; and from *chlorina* branches came only chlorophyll-free plants.

3. These plants were of the yellowish *aurea* type. They were crossed with many other forms, but the results are somewhat complex, and the author does not commit himself definitely on their analysis. He thinks that possibly this may be a case of infectious chlorosis. He says: "While chlorosis of *Abutilon* and other Malvaceae is transmitted neither through the male nor the female gametes, this *aurea* character is carried by a part of the gametes of both kinds." It seems to the reviewer that if this phenomenon is indeed one of infectious chlorosis, the small number of *aurea* plants of the filial generations might easily be due to reinfection.—E. M. EAST.

**Statistical methods in phytogeography.**—In his attempts to obtain more exact data regarding the distribution of the various elements of alpine flora, JACCARD<sup>10</sup> has developed certain statistical methods that have not only revealed several interesting facts regarding the vegetation of the Alps, but promise to be equally serviceable in the investigation of other areas. Having made a census of the areas to be compared, in this instance similarly situated localities of approximately the same area in various parts of the Alps, he applies for the analysis of his results his *coefficient of community* (C.c.), that is,

$$\frac{\text{No. of species common to two districts} \times 100}{\text{Total no. of species in the two districts}} = \text{C.c.}$$

For alpine meadows at an altitude of 1900 m., several interesting results were manifest, such as: (1) the fact that the value of C.c. does not depend upon floral richness, but upon the ecological characters of the areas studied; (2) the

<sup>10</sup> JACCARD, PAUL, The distribution of the flora in the alpine zone. *New Phytol.* 11:37-50. 1912.